HOx-NOx Photochemistry Issues

-Theory vs. Observations in radical measurements
(OH, HO2, RO2, CH2O, NO2,...)
-Radical Budgets and Trends (sunrise/sunset)
-Role of aerosols (mineral, soot, sulfate, …) in photochemistry
(both radiative impact and heterogeneous chemistry)
-Reactive Nitrogen Budget
Closure
Relationship of partitioning to various sources
Photochemical evolution, NOx reservoirs
Influence on ozone
-Role of deep convection on photochemistry
-Photochemical ozone budget
-Evidence for nighttime oxidation and follow-on chemistry
-Evidence for halogen chemistry

Science Needs

• Jordan	aerosol characterization synthesis
• Jordan/Clark	cloud identification
• Shetter	photolysis frequencies of oxygenates
• Crawford/Evans/ Carmichael	box model testing with 3D fields
• Fried	high time resolved CH2O
• Crawford/Davis	archival of preliminary box model calculations
• Crawford/Davis	revisit previous HOx measurements from PTA, PTB, ACE-1

HOx/NOx paper list

- Eisele et al., Instrument intercomparisons during TRACE-P
- Crawford et al., Theoretical-vs-Observed Radical concentrations

- Harder et al., HOx budget
- Cantrell et al., RO2, O3 production in W-Pacific
- Cantrell et al., comparison of HO2/ROx

- Harder et al., Impact of aerosol and aerosol composition on HOx
- Mauldin et al., OH sulfuric acid and MSA in the Asian outflow
- Harder et al., HOx trends during sunrise/set/nightime
- Mauldin et al., Nighttime oxidation of SO2
- Shetter et al., Role of clouds in the oxidation capacity of the polluted and remote atmosphere
- Lefer et al, Impact of aerosols on photolysis frequencies

- Davis et al., Comparison of radical budgets from PEM-Tropics B and TRACE-P
- Evans et al., Global analysis of O3, HOx and NOx

HOx/NOx paper list

- Kita et al., NOy sources
- Kondo et al., NOx/NOy partitioning
- Talbot et al., NOy budget
- Tan et al., NOx budget
- Weinheimer et al., PAN as a source of NOx
- Zondlo et al., HNO3 and aerosols in the Asian outflow

- Saut et al., Convective chemical processes
- Davis et al., Ship plumes
- Crawford et al., Trajectory models

- Wingenter et al., Halogen atom chemistry
- Blake et al., Evidence of halogen oxidation near cirrus clouds

- Kondo et al., NO2 instrumentation
- Tan et al., NO2 instrumentation